

MANAGEMENT 405: MANAGERIAL ECONOMICS COURSE SYLLABUS

Course Objectives

Managerial Economics is concerned with the application of economic principles to key management decisions within organizations. It provides guidance to increase value creation within organizations, and allows a better understanding of the external business environment in which organizations operate. A primary purpose of the course is to develop tools useful in other Anderson courses: economics is a key foundation for much of what is taught in finance, marketing, business strategy and virtually every other course in the MBA program. Managerial Economics is fundamentally a unique way of thinking about problems, issues and decisions that managers face in each of the functional areas of their organization. This unique way of thinking stresses the importance of incentives as determinants of human behavior and performance, and emphasizes the consideration of costs and benefits as an efficient method for reaching economic decisions.

Contact Information

My office is located in Anderson C-510 in Entrepreneur's Hall. Office phone: (310) 825-4507. Cell: (650) 245-3271. The easiest way to reach me is usually by email: wacziarg@ucla.edu I will respond to your emails promptly, and will be accessible to answer questions throughout the fall quarter. You may set up appointments to meet with me at any time via email.

Grades

Final grades are determined on the following basis:

Midterm: 25%

Final: 40%

Homework: 25%

Class participation: 10%

It is imperative that you come to class on time and well-prepared - having read the assignment beforehand. I will sometimes cold-call. Under no circumstances will special assignments substitute for inadequate performance, nor will extra-credit projects be assigned.

The grade distributions will correspond to the School's guidelines for core courses: no more than 20% A's and A+'s, and no more than 45% A's of all types.

Attendance Policy

Attendance is required at all sessions. For any absence I ask that you email me prior to the missed class to inform me of your absence as a courtesy – this is also to avoid being inadvertently cold-called while absent. You are entitled to one absence during the quarter. Absences beyond the first will affect your final grade. It is not possible to pass the course with three or more absences.

Assignments

Six problem sets will be assigned. Problems are designed to check your progress and to extend and reinforce concepts covered in class. One or two questions similar to the ones on the problem sets will appear on the exams. Since the exams will test individual performances, it is critical that you acquire skills at solving the problems independently. Therefore, while these assignments are to be turned in by groups, you should attempt beforehand to answer each question individually. Group assignments will be graded on a continuous 0-100 scale. Solutions will be distributed for each assignment. These step-by-step solutions are a good substitute for seeing me solve these problems in person in class. There will not be much time in class to do this. It is up to the members of the class to form study groups. Group size must be in the range of 4 to 6 members. Each group should submit one set of answers. The problem sets are due according to the schedule in the course calendar below. No late assignments will be accepted.

Problem set 1: due Friday 10/03 (covers module 1)

Problem set 2: due Friday 10/10 (covers modules 1 and 2)

Problem set 3: due Friday 10/17 (covers modules 1 through 3)

Problem set 4: due Friday 10/31 (covers modules 1 through 5)

Problem set 5: due Friday 11/14 (covers modules 1 through 7)

Problem set 6: due Wednesday 11/26 (covers modules 1 through 9)

Use of Unauthorized Materials

You are prohibited from using any old answer keys to exams and homework sets distributed in prior courses, unless I have distributed them myself. You are similarly prohibited from using other students' homework solutions. Any published work that is used in your written solutions must contain the appropriate citation. Violations will be brought to the MBA Student Ethics Committee.

Exams

Midterm and final exams are scheduled as follows:

Midterm	November 4
Final	December 9

The exams will test your ability to utilize economic principles to understand problems and make managerial decisions. Sample midterm and final exams (with solutions) are included in your course packet to serve as a sample of the type of exams given in the past. No makeup exams will be scheduled. If you must miss the midterm, the final will be given added weight (a total weight of 65%), and your grade will be determined on the basis of your performance there plus your homework scores (25% weight) and participation (10%).

Exams are open-book and full use of the computer (except connections to network) is allowed. Cell phones and all PDA's must be turned off during the exams. All writing is to cease when time is called.

Review Sessions

The Teaching Assistants will conduct review sessions. There will be at least two sessions scheduled – each before the exams. Times and locations will be announced in due course.

Text

The required text is William F. Samuelson and Stephen G. Marks, Managerial Economics, Wiley Higher Education, 2006 (fifth edition).

For those of you that would like a suggestion of a more basic text to serve as a foundation for Samuelson and Marks, I suggest *The Economic Way of Thinking* by Paul Heyne, Peter J. Boettke and David L. Prychitko, Prentice Hall, 2005.

Another useful resource available over the Internet that you could consider is the MBA Primer – Managerial Economics, an interactive program designed for those lacking any background in economics. It is published by Thompson Learning.

<http://v2.mbaprimer.com/>

In addition, readings from the electronic version of the *Wall Street Journal* (or, occasionally, other sources) will be assigned. Citations to the selected articles will be e-mailed to you each Friday. These readings will be discussed the first class of the next week for about 20 minutes and everyone will be expected to have read these assigned articles.

To subscribe at a reduced educational rate, go to:

<http://wsj.subscription-offers.com/newspapers/wall-street-journal-online/>

Use of the Computer

All course materials, including electronic copies of all my slides will reside on the course home page:

<http://internal.anderson.ucla.edu/course/2008-2009/fa40504/cgi-bin/main.fcgi>

Note that there will only be one home page maintained for my two sections (you will be automatically redirected to the appropriate website upon logging in). You can download and review course materials at your leisure. Slides were created in PowerPoint and will be made available as the quarter progresses.

In addition, an Excel workbook used in class will be available on the web site. I will make extensive use of e-mail to communicate with the class.

Note: Since all of you will have portable computers, I expect that many of you will choose to take notes directly on your laptop. Please be considerate of your fellow classmates and limit your use of the computer in class to this purpose. Surfing the Internet and catching up on your correspondence is distracting to those around you and is not acceptable.

Instructor Evaluation

After the third week, your views about the course will be formally solicited. Please turn in the evaluation form to your section leader. There will also be a final course evaluation. You are free to stop by and discuss the course with me and offer suggestions for improvements at any time. I

will be very accessible and receptive to feedback. In addition, an opportunity for providing me with anonymous feedback exists by using the following web link:

<http://internal.anderson.ucla.edu/faculty/romain.wacziarg/feedback/feedback.html>

Miscellaneous

Please display name cards at each class, including exams. The use of prior years' course materials is strictly prohibited.

CLASS SCHEDULE

Class #	Date	Topic	Problem Set Due	Reading Assignment
1	09/30	Module 1: Optimization		Chapters 1 and 2
2	10/02	Module 1 (cont.)	1: 10/03	
3	10/07	Module 2: Demand Analysis I		Chapter 3: pp. 79 - 86
4	10/09	Module 2 (cont.)	2: 10/10	Chapter 3: pp. 87 – 101
5	10/14	Module 3: Demand Analysis II & Estimation		Chapter 3: 104 - 114 Chapter 10: pp. 397 - 405
6	10/16	Module 3 (cont.)	3: 10/17	Chapter 4
7	10/21	Module 4: Production		Chapter 6: pp. 214 - 235
8	10/23	Module 4 (cont.)		Chapter 6: pp. 238 - 245
9	10/28	Module 5: Costs		Chapter 7: pp. 252 - 266
10	10/30	Module 5 (cont.)	4: 10/31	Chapter 7: pp. 266 - 282
11	11/04	Midterm (covers through Module 5)		
12	11/06	Module 6: Profit maximization		Chapter 7: pp. 282 - 291
13	11/11	No class (Veteran's day)		
14	11/13	Module 7: Competitive markets	5: 11/14	Chapter 10: pp. 405 – 410; pp. 421- 427; Teaching Note: Quotas and Tariffs
15	11/18	Module 8: Price Searchers		Chapter 11: pp. 437 - 455
16	11/20	Module 8 (cont.)		Chapter 11: pp. 455 - 462
17	11/21 (make-up class)	Module 9: Advanced Pricing		
18	11/25	Module 10: Oligopoly and Game Theory	6: 11/26	Chapter 12: pp. 469 - 487
19	11/27	No class (Thanksgiving)		
20	12/02	Module 10 (cont.)		Chapter 12: pp. 487 – 493, pp. 514-528
21	12/04	Module 11: Asymmetric Information		Chapter 15
•••	12/09	Final Exam		•••

COURSE CONCEPTS AND OBJECTIVES BY MODULE

Module 1: Introduction and Optimization

Key Concepts

1. Value maximization; corporate social responsibility
2. Opportunity cost
3. Fixed cost
4. Differential (variable) cost
5. Profit contribution analysis
6. Operating leverage
7. Marginal analysis
 - 7.1. Marginal benefit
 - 7.2. Marginal cost
 - 7.3. Diminishing marginal returns
8. Optimization and principle of maximum net advantage
9. Externalities and perspective
 - 9.1 Example: Revenue sharing
 - 9.2 Example: Health care demand
10. Cost-effectiveness

Learning Objectives

1. Explain what is meant by the value of the firm and indicate the factors that determine it.
2. Defend the assertion that value maximization is a legitimate objective for managers to follow.
3. Define corporate social responsibility and determine when there is a conflict between it and value maximization and when there is alignment
4. Define and give three business examples of opportunity cost.
5. Explain the distinction between an irrelevant cost and a relevant (differential) one.
6. Explain mathematically, graphically and verbally why a sunk cost is irrelevant in a pricing decision.
7. Calculate the breakeven quantity when fixed, variable cost and price are given.
8. Explain how a company's operating leverage is related to its business strategy and to its cost structure
9. Explain why allocating a joint cost across several business lines may result in unwise decisions.
10. Define the principle of maximum net advantage and state the context in which it can be applied.
11. Derive and explain the condition for maximum net advantage to attain.
12. State and explain the principle of cost-effectiveness and the context in which it can be applied.
13. State and explain the principle of perspective.
14. Relate the principle of perspective to: externality, sub-optimal behavior, alignment and to economic incentives.

15. Give a business example where differing perspectives create organizational conflict.
16. Discuss at least two ways that organizational alignment can be achieved when problems of perspective exist.
17. Explain the conflicts that arise from revenue sharing agreements and how these can be resolved.

Module 2: Demand Analysis I

Key Concepts

1. Personal value
 - 1.1. Total personal value
 - 1.2. Marginal personal value
 - 1.3. Willingness to pay
2. Indifference curves
3. The demand schedule
4. Consumer surplus
5. The demand function
6. Change in demand vs. quantity demanded
7. Determinants of demand
 - 7.1. Variables usually outside the firm's control
 - 7.1.1. Income
 - 7.1.2. Prices of related goods
 - 7.1.3. Price expectations
 - 7.1.4. Population size and mix
 - 7.1.5. Network effects
 - 7.2. Factors that the firm can usually control
 - 7.2.1. Product
 - 7.2.2. Promotion
 - 7.2.3. Place
8. Elasticity definitions
 - 8.1. Income elasticity
 - 8.2. Cross price elasticity
 - 8.3. Own price elasticity
 - 8.4. Promotional
9. Price elasticity categories
10. Special cases of price elasticity
11. Elasticity and total revenues
12. Relation among P, MR and Ed
13. Basic price discrimination
 - 12.1 Rationale
 - 12.2 Rules

Learning Objectives

1. Define an indifference curve and explain the shape of one between two goods; between a good and a bad.
2. Define marginal personal value and derive a schedule from total personal value.
3. Derive and plot a demand schedule for an individual from knowledge of the person's marginal personal value.
4. State the law of demand
5. Explain the reasons behind a downward sloping industry demand curve
6. Infer the marginal personal value schedule implicit in a person's demand schedule.
7. Define consumer surplus and calculate its magnitude in the context of a numerical example.
8. Graphically portray consumer surplus.
9. Distinguish between a change in demand and a change in quantity demanded.
10. List at least five conceptually distinct factors that cause demand to change.
11. Define and give examples of complements, substitutes and normal goods.
12. Define, precisely, price elasticity of demand.
13. Define cross price and income elasticities.
14. Calculate price elasticity of demand from data.
15. Categorize demand as being elastic or inelastic from given data.
16. Explain the unique properties and reasons behind totally elastic and totally inelastic demand.
17. Assess the impact on revenues of a price change under alternative scenarios of elasticity.
18. Argue that a firm should not operate in the inelastic range of demand.
19. Demonstrate verbally and graphically that the profit-maximizing price occurs where demand is elastic if marginal cost is positive.
20. Distinguish the special case of zero marginal cost and the unique pricing solution where demand elasticity is unity.
21. Correctly provide the equation that relates marginal revenue, price and elasticity.
22. Calculate marginal revenue from knowledge of the demand function.
23. Determine the optimal price for a price searcher – given the demand and cost functions.
24. Explain why, for the price searcher, marginal revenue is less than price.

Module 3: Demand Analysis II; Demand Estimation

Key Concepts

1. Determinants of price elasticity
 - 1.1. Competition from substitutes: Role of market share
 - 1.2. Relationship Between Market and Firm Elasticity
 - 1.3. Rivals' price response
 - 1.4. Other factors
 - 1.4.1 Switching costs
 - 1.4.2 Search costs
 - 1.4.3 Quality and signaling
 - 1.4.4 Importance of item in total costs of “solution’
2. Differentiation versus Cost Leadership strategies
3. Supply
 - 3.1. Supply function
 - 3.2. Law of supply
 - 3.3. Change in quantity supplied versus change in supply
 - 3.4. Supply elasticity
4. Competitive market equilibrium
5. Effects of demand and supply shifts
6. Price ceiling
7. Price floor
8. Firm versus market demand
9. Estimating demand - econometrics
 - 9.1. Linear regression
 - 9.2. Interpreting coefficients
 - 9.3. Interpreting regression fit
 - 9.4. Omitted variables
 - 9.5. Log linear estimation
 - 9.6. Identification problem
10. Solving for optimal price

Learning Objectives

1. Identify the most important factor in determining elasticity – competition.
2. Describe how its market share impacts a firm’s demand elasticity.
3. Explain how the elasticity of supply of substitute products impacts the elasticity of demand for a seller.
4. Define switching costs and relate the concept to elasticity.
5. Discuss how the Internet might affect demand elasticity facing a particular on-line seller.
6. Conjecture whether demand is likely to be elastic or not in the absence of data.
7. Distinguish between a firm and an industry elasticity and explain which is relevant in a particular situation, including price matching of rivals.
8. Link elasticity to the strategies of product differentiation and cost leadership.

9. Display the market clearing price and quantity for a competitive market.
10. Show the impact of a change in demand on the market clearing price and quantity.
11. Show the impact of a change in supply on the market clearing price and quantity.
12. Explain how supply elasticity affects the degree to which price changes when demand changes.
13. Distinguish between the industry demand for a product sold in a competitive market from the demand facing one seller.
14. Explain why the demand facing a price taker is horizontal.
15. Run a regression that estimates a demand function containing multiple independent variables.
16. Interpret in words the meaning of the coefficients of each of the independent variables.
17. Calculate the price, cross price, and income elasticities from the regression output at given values of the independent variables.
18. Forecast demand based on the regression results.
19. Use the regression and knowledge of costs to make pricing decisions.
20. Explain the problem of non-linearity.
21. Recast a regression in log-linear form.
22. Correctly interpret the coefficients of a log-linear demand regression as elasticities.
23. Explain and give one example of the identification problem.

Module 4: Production

Key Concepts

1. Production function
 - 1.1. Short run function
 - 1.2. Long run function
2. Law of diminishing returns
3. Product curves
 - 3.1. Total
 - 3.2. Marginal
 - 3.3. Average
4. Marginal revenue product
5. Marginal labor cost
6. Optimal employment of labor in the short run
7. Production isoquants
8. Marginal rate of technical substitution
9. Returns to scale
 - 9.1. Constant
 - 9.2. Increasing
 - 9.3. Decreasing
10. Isocost lines
11. Optimal combinations of factors
12. Expansion path
13. Application: Optimal interventions and Cost-effectiveness

Learning Objectives

1. Distinguish between short run and long run situations.
2. Give a precise definition and explanation for the principle of diminishing returns.
3. Define MP, AP and TP of labor and be able to show on a graph the relationships among the functions.
4. Employ data on the MP of labor and demand for the product and create the short run demand curve for labor, using the concept of marginal revenue product.
5. State and explain where the optimal employment is for a factor such as labor in the short run.
6. Explain why the marginal labor cost exceeds the wage for a wage searcher.
7. Define a production isoquant and state the relationship between the slope of the isoquant and the ratio of factor marginal products.
8. Explain why the ratio of the MP's is a measure of the substitutability between factors.
9. Explain why the slope of an isoquant becomes flatter as one moves down along it.
10. State the definition of and reasons for both increasing and decreasing returns to scale.
11. Define an isocost line and demonstrate that its slope is a measure of relative factor prices and that its position is a measure of total outlay.
12. Explain verbally, graphically and mathematically why for optimality in the mix of factors, MRTS must equal the ratio of the factor prices.
14. Define an expansion path and explain why it is a long-run equilibrium production concept.
15. Be able to apply correctly the optimal condition for factor employment in other settings besides one dealing with production (capital and labor) when given a set of numbers relating to factor prices and production.
16. Define what is meant by the term "cost-effective".
17. Determine which of two alternative methods of achieving an outcome is preferred - given data on costs and effects of each.

Module 5: Costs

Key Concepts

1. Cost types
 - 1.1. fixed
 - 1.2. sunk
 - 1.3. variable
 - 1.4. differential
2. Application of cost types: technology adoption
3. Cost functions
 - 3.1. Short run
 - 3.1.1. total fixed cost
 - 3.1.2. total cost
 - 3.1.3. average variable cost

- 3.1.4. average fixed cost
 - 3.1.5. marginal cost
 - 3.2. Long run
 - 3.2.1. total cost
 - 3.2.2. average cost
 - 3.2.3. marginal cost
- 4. Application of costs: Make versus Buy
- 5. Relation between cost and productivity
 - 5.1. MC and MP of labor
 - 5.2. Unit labor cost and AP of labor
- 6. Relation between long & short run cost functions: the envelope curve
- 7. Economies of scale
- 8. Economies of scope
- 9. Learning curve

Learning Objectives

1. Define implicit cost as opposed to explicit cost and give an example of each.
2. Explain the meaning of normal rate of return by relating the concept to opportunity cost.
3. Demonstrate that a normal rate of return is equivalent to zero economic profit.
4. Distinguish between a short run and a long run situation.
5. Distinguish among sunk, fixed, and variable costs in a variety of contexts.
6. Explain the relationship between a marginal and an average cost function.
7. Define and derive per unit cost functions (marginal, average variable, average fixed, average total) from knowledge of total cost functions and vice versa.
8. Explain the underlying reasons behind the shapes of each cost curve - both short run and long run.
10. Derive and explain the implications of the relationship between unit labor cost and the average productivity of labor; ditto for marginal cost and for the marginal productivity of labor.
11. Demonstrate that long run adjustments are cheaper than short run ones because the firm can minimize costs in the long run.
12. Understand that the long run cost functions come from the expansion path of the firm and stem from the cost-minimizing condition.
13. Derive and plot the long run average cost curve as the envelope of the short run curves.
14. Differentiate between the reasons behind a declining long run average cost and a declining short run average cost.
15. Define and recognize the existence of economies of scale - given cost data.
16. State three different reasons why scale economies may occur.
17. Decide which scale of plant is most advantageous for a firm to build.
18. Differentiate between lower costs that stem from cumulated volume versus rate effects
19. Relate the Improvement Factor to the exponent in the equation for the learning effect.
20. Explain how the learning effect can lead to competitive advantage.

Module 6: Profit Maximization and Profit Contribution Analysis

Key Concepts

1. Market structures
 - 1.1. Price taker
 - 1.2. Price searcher
2. Demand facing a price taker
3. Price taker: profit maximizing output
 - 3.1. Short run
 - 3.2. Long run
4. Economic vs. accounting profit
5. Shut-down condition
6. Supply curve of a price taker
7. Industry supply curve
8. Relationship between MC and supply
9. Contribution analysis
10. Market entry
11. Long run competitive equilibrium
12. Industry supply in long run
 - 12.1. Constant cost industry
 - 12.2. Increasing cost industry
 - 12.3. Decreasing cost industry

Learning Objectives

1. Distinguish between a price taker and a price searcher, giving two examples of each.
2. Distinguish the features of monopoly, oligopoly and monopolistic competition, giving two examples of each.
3. Describe and graph the revenue conditions (demand, MR, and TR) facing a price taker.
4. State the profit maximizing condition for the price taker in the short run.
5. Explain the “shut down” rule.
6. Portray profit maximizing price and output for a price taker firm that is losing money in the short run but finds it advantageous to operate.
7. Portray profit maximizing price and output for a price taker firm that is making profit in the short run.
8. Explain how the firm’s short run supply curve is determined.
9. Depict the effect of a change in costs on the position of the firm’s supply curve.
10. Derive the industry supply as the lateral summation of all the firms’ supply curves.
11. Predict which firms will stay in the market at the lowest prices.
12. Define “contribution” and explain why it is the criterion for decisions in the short run.
13. Explain why entry of new firms occurs when price is above average cost for the existing firms.
14. Define, state the conditions, and graphically portray long-run competitive equilibrium for the firm.
15. Explain what is meant by constant, decreasing and increasing cost industries.

16. Distinguish between economies of scale and a decreasing cost industry.
17. Define the long run industry supply price.
18. Predict how the elasticity of supply of inputs will impact the shape of the long run industry supply curve

Module 7: Applications of Price Takers' Markets

Key Concepts

1. Effect of a tax in competitive markets
2. Effects of price controls
3. Allocation mechanisms
4. Licensing and entry restrictions
5. Value of foreign exchange & trade balance
6. Benefits from international trade
7. Effects of trade restrictions
8. Non-renewal resource markets
9. The market for agricultural products

Learning Objectives

1. Distinguish between incidence and burden of a tax and graphically demonstrate the role of supply and demand elasticities in determining the burden.
2. Portray the impacts of price controls, including shortages, surpluses and non-price competition.
3. Illustrate the impacts of licensing restrictions in an otherwise competitive market, including prices and quantities, the losses and gains to effected parties. Also, explain how elasticity of supply and demand shapes these results.
4. Explain and graphically portray the benefits of free trade
5. Use supply and demand to show the implications of currency value changes on both exports and imports – explaining how elasticity of demand can affect the implications.
6. Demonstrate graphically the effects, including prices, quantities, gains and losses of quotas placed on an imported product in a competitive market.
7. Identify the idiosyncratic nature of supply conditions in markets for non-renewable resources such as petroleum.
8. Analyze and explain the short and long term consequences of increased demands for food items on prices, quantities and profits in the entire food supply chain.

Module 8: Price Searchers' Markets

Key Concepts

1. Types and characteristics of price searchers
 - 1.1. Oligopoly
 - 1.2. Monopolistic Competition
 - 1.3. Monopoly
2. Price searcher model
3. Monopolistic competition: model
 - 3.1. Short run equilibrium
 - 3.2. Long run equilibrium
4. Barriers to entry
 - 4.1. Strategic versus structural barriers
 - 4.2. Switching costs
 - 4.3. Network effects
 - 4.4. Economies of scale
 - 4.5. Capital requirements
 - 4.6. Learning curve
 - 4.7. Control of resources
 - 4.8. Legal barriers - patents, copyrights, trademarks, licenses
5. Competitive advantage
6. Positioning strategy
7. Cartels
8. Welfare cost of monopoly

Learning Objectives

1. Define the characteristics of price searchers, emphasizing the revenue conditions faced
2. Graphically, mathematically and verbally show the profit maximizing price, quantity and level of profit in a price searchers' context.
3. Distinguish between the profit-maximizing solution for a monopolist and that for a monopolistically competitive firm.
4. State the conditions for long run monopolistically competitive equilibrium.
5. Give a definition of barrier to entry
6. Enumerate and explain at least six categories of barriers to entry.
7. Define competitive advantage and explain its relationship to long run competitive equilibrium.
8. Define what is meant by the benchmark competitor's value proposition and explain why a firm must at least match this
9. Graphically display the choice of market position between quality and price for a price searcher.
10. Demonstrate that a fixed fee makes no difference in the pricing decision.
11. Graphically portray the region (in the quality/price space) that a firm can operate in and simultaneously satisfy consumers and shareholders.

12. Explain why cartels exist, what problems they face in being effective, and graphically portray the cartel model.
13. Argue the economic basis for antitrust policy using graphs.

Module 9: Advanced Pricing

Key Concepts

1. Objectives of pricing
2. Review of pricing: conventional approach
3. Price Discrimination
 - 3.1. Standard
 - 3.2. Incentive compatible scheme: Versioning
4. Volume pricing
 - 4.1. Fixed fee
 - 4.2. Sliding scale
 - 4.3. All or none
 - 4.4. Implications of positive marginal cost

Learning Objectives

1. Describe the objectives and dilemmas of pricing
2. Enumerate and explain the nature of at least three impediments to price discrimination.
3. Explain why versioning accomplishes the same objective as price discrimination.
4. Explain what is meant by an incentive compatible scheme and why versioning is one.
5. Explain how metered pricing and tie-ins can overcome some of the impediments to price discrimination.
6. Explain how volume pricing can enhance the seller's profits compared to simple pricing.
7. Explain why volume pricing makes sense only in the case of continuous choice.
8. Graphically portray what volume pricing can do to consumer surplus.
9. Describe the manner in which a two-part pricing structure (fixed fee plus variable fee) operates.
10. Understand that if marginal cost is zero, the optimal variable fee is zero if buyers have identical demands.
11. Describe the manner in which a sliding-scale discount pricing structure operates.
12. Describe the manner in which an all-or-none pricing structure operates.
13. Demonstrate the equivalence of all three variants of volume pricing.
14. Explain the impediments to implementing a volume-pricing scheme.

Module 10: Oligopoly and Interdependent Behavior

Key Concepts

1. Oligopoly and interdependent behavior
2. Measuring performance by structure
 - 2.1. Concentration ratios
 - 2.2. Hirschman-Herfindahl Index
3. Basic Oligopoly models
 - 3.1. Bertrand
 - 3.2. Cournot
4. Advanced Oligopoly models
 - 4.1. Kinked demand curve
 - 4.2. Price leadership
 - 4.3. Limit entry pricing
5. Game Theory
 - 5.1. Optimization
 - 5.2. Payoff tables
 - 5.3. Equilibrium strategy
 - 5.4. Dominant strategy
 - 5.5. Game theory and price wars
 - 5.6. Nash equilibrium

Learning Objectives

1. Explain what is meant by interdependent behavior.
2. Identify the essence of oligopoly as being interdependent behavior.
3. Construct a top-four industry concentration index.
4. Enumerate the difficulties of using a top-four industry concentration index as an indicator of monopoly behavior.
5. Define the Hirschman-Herfindahl index and explain why it might be superior to a top-four industry concentration index.
6. Explain the assumptions and results of the Bertrand and Cournot models.
7. Portray the "kinked demand model" and identify its assumptions, applicability, implications and flaws.
8. Recite the assumptions that are used to build the model of price leadership
9. Identify at least one characteristic of an industry that is helpful for price leadership to be effective
10. Identify the motivation for limit entry pricing and the overall manner in which it is achieved.
11. Graph the two variants of the limit entry pricing model: one with constant unit costs and the other with scale economies
12. Recognize the incentive for oligopolists to combine or collude.
13. Infer the dominant strategy of each player when a payoff matrix is provided.
14. Verbally explain why price wars occur using game theory.
15. Understand how to find a Nash equilibrium.

16. Explain what a zero sum game is.
17. Understand conditions under which a prisoner's dilemma occurs.
18. Understand how repeated interactions can help solve the prisoner's dilemma.

Module 11: Asymmetric Information

Key concepts:

1. Asymmetric information
2. Adverse selection
3. Signaling
4. Moral hazard
5. Principal-agent relationship

Learning objectives:

1. Understand instances in which asymmetric information can undermine the proper functioning of markets.
2. Describe how adverse selection can lead to inefficient market outcomes.
3. Understand how signaling can alleviate adverse selection problems.
4. Explain how signaling can work on labor markets to improve the allocation of workers to firms.
5. Define moral hazard and provide 3 examples of situations involving moral hazard.
6. Describe mechanisms to alleviate the problem of moral hazard.
7. Explain how moral hazard can undermine insurance markets.
8. Name 3 examples of principal-agent relationships.
9. Can the principal-agent model explain why some organizations may not pursue profit-maximization as a goal?
10. Describe ways in which agency problems between shareholders and managers can be alleviated.